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NON-WIRES SOLUTIONS ROUND TABLE MEETING

Jan. 21, 2004

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Round Table Accomplishments, FY 2004 Targets and Future Direction

Brian Silverstein and Mike Weedall

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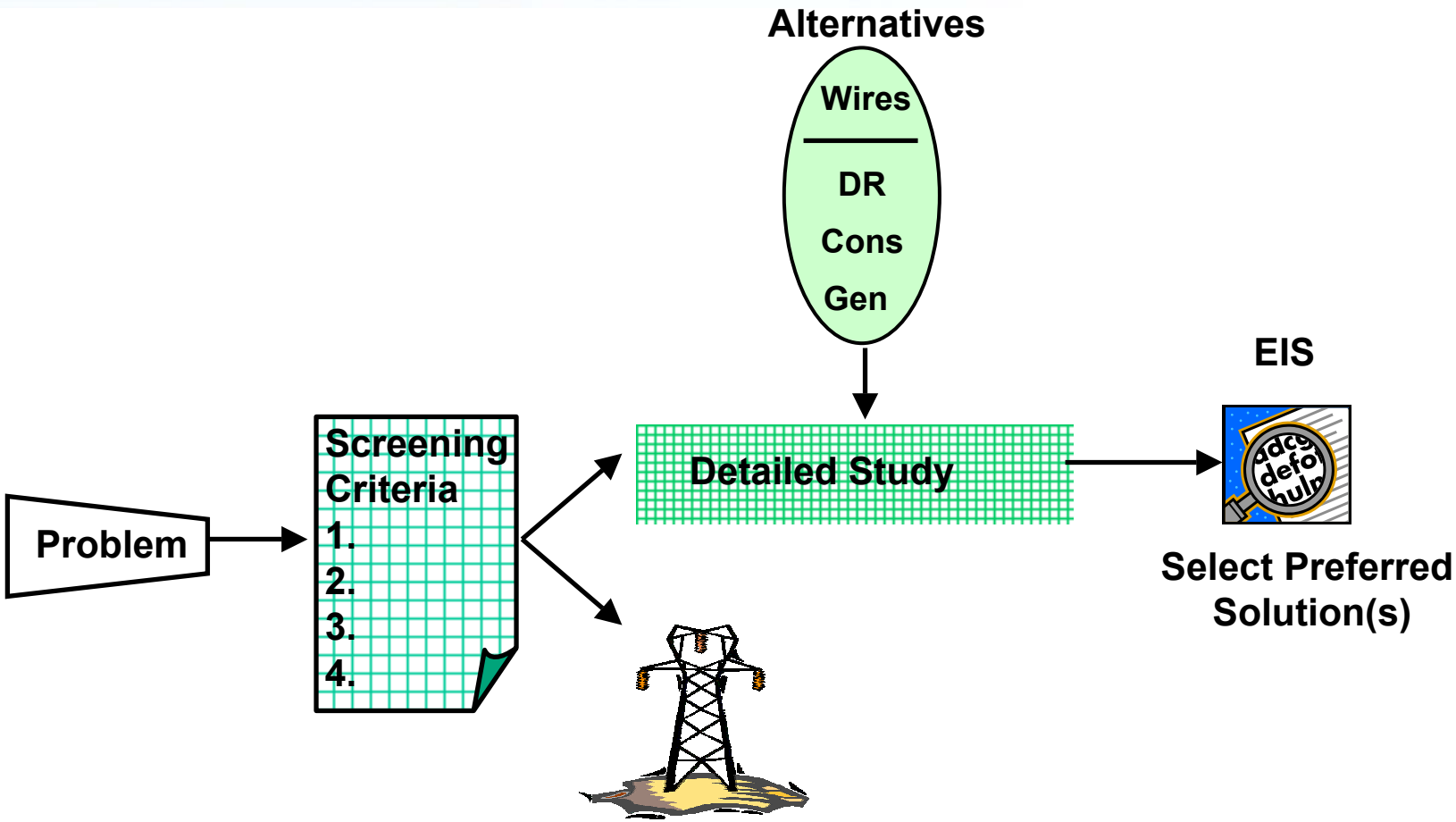
Actualizing Non Wires Solutions

- NWS is integrated into the transmission toolkit through open transparent planning, routine use of the screening criteria and early development of alternatives.
- Transmission staff is gaining acceptance of NWS through pilots and addressing barriers.
- Real test – deploying NWS to solve problems:
  - Solutions selected through EIS
  - Launch Olympic Peninsula EIS in Fall
  - Lower Valley EIS to follow

Decision Process



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Round Table Accomplishments

- Development of screening criteria
- Review and refinement of detailed studies
- Resolve cost test issues
- Begin defining future pilots
- Identification of institutional barriers and developing action plans

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BPA Targets for 2004

- NWS high level studies on two new projects
- Detailed Olympic Peninsula study
- Implementation of the six institutional barriers action plans
- Design and implement FY 04 pilots
- Finalize criteria for identifying FY 05-06 pilots
- Conduct public outreach to stakeholders and customers, beyond the Roundtable, to help shape changes to the transmission planning process
- Initiate the TBL Policy EIS, incorporating the proposed changes to the planning process
- Issue RFP to solicit co-funding and partnership for FY 2005-2006 pilot projects

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Round Table 2004 Focus

- Communications and outreach
- Pursue resolution of institutional barriers
- Seek broader utility participation
- Refine screening criteria and detailed studies as needed
- Develop 2005 pilots

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How Are We Doing and Where Are We Going?

Round Table Members

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Implementing and Refining the Screening Criteria

Brian Silverstein

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Discussion of 2004 Detailed Studies

Brian Silverstein and Mike Weedall

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Difference Between High Level Study and Detailed Study

High Level Study	Detailed Study
Relies on secondary sources & experience	Involve additional primary data collection (utility interviews, site visits)
Generalized information such as number of accounts, census, & establishments	Refine information about housing stock, fuels, commercial establishments, energy intensive processes
Simple assumptions about participation rates	Assessment based on utility experience with participation rates & incentives
Assumes no historical acquisitions	Includes historical accomplishments
Broad categories of DR, DG, EE measures	Direct local information collected from utilities on likely opportunities for DR, DG, & EE
Test for Cost Effectiveness	Quantify Resource Availability & Cost

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Non-Wires Public Outreach and Involvement

Carolyn Whitney

Objective

- Build recognition and support for the Non-Wires Solutions Round Table initiative to update BPA's transmission planning process.
  - Regional
  - National

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Tactics

- Hold a symposium/conference to spotlight transmission reliability, non-wires initiatives and emerging energy efficiency technology
  - Hosted by BPA (possible other sponsors)
  - Showcase Northwest reliability of power grid
  - Educate about non-wires initiative
  - Provide opportunity to learn about national/international transmission initiatives
  - Tradeshow – new technologies
  - Timeline – Fall 2004 (in conjunction with NWS meeting

Tactics

- Create Non-Wires Speakers Bureau
  - Develop PowerPoint presentation
  - Create calendar of potential speaking opportunities
  - BPA staff or Round Table members present
  - Some presentations already complete
    - Northwest Energy Coalition -- Seattle

Tactics

- Outreach by Round Table members
  - Feature story in internal and external newsletters
  - Distribution of Non-Wires quarterly newsletter to constituents
  - Presentations to constituents or to professional organizations

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Tactics

- Quarterly newsletter
  - January issue mailed to 5,000 on BPA list and 50 copies distributed to each NWS member.
  - Second edition targeted for March/April
    - 2004 targets
    - Infrastructure status
    - Kangley-Echo Lake transmission line completion
    - Pilots
    - Non-wires studies
    - Highlights from subcommittee reports

Tactics

- Media outreach
  - Press releases on Olympic Peninsula contract awards
  - Media strategy on upcoming pilots
  - Feature stories to trade publications
    - Ongoing effort
    - Success to date – Engineering News Record and Transmission Insight Newsletter

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Tactics

- BPA-specific efforts
  - Quarterly news stories in BPA Journal
  - Briefing document use with Washington DC, federal and state stakeholders
  - Communication package for TBL account executives to use to brief customers and tribes

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Preliminary Review of Legal Treatment of Non-Wires Solutions

Soyna Baskerville and Mary Jensen

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Determining When "Non-Wires" Solutions are Transmission Solutions

A Preliminary Review of Relevant Organic Statutes, Other Legal Considerations, and Industry Practices

Non-wires Solutions Roundtable Meeting – January 21, 2004

Preliminary Research

- The transmission section of BPA's Office of General Counsel is in the early stages of analyzing this issue.
- No legal positions on any issue have been finalized at this time, and this presentation will not present legal analysis.
- We were asked to inform you of the legal research we are finding relevant to an analysis.

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What Is Relevant

- BPA's Organic Statutes
  - -- Bonneville Project Act, P.L. 75-329, 16 U.S.C. § 832-832l.
  - -- Transmission Systems Act, P.L. 93-454, 16 U.S.C. § § 838-838k.
  - -- Northwest Power Act, P.L. 96-501, 16 U.S.C. § 839-839h.
- BPA's Open Access Transmission Tariff
  - -- PTP Service
  - -- Network Transmission Integration Service
- Rate case history on power and transmission cost allocation

Bonneville Project Act

§832a(f). Subject only to the provisions of this Act, the Administrator is authorized to enter into such contracts, agreements, and arrangements, including the amendment, modification, adjustment, or cancellation thereof and the compromise or final settlement of any claim arising thereunder, and to make such expenditures, upon such terms and conditions and in such manner as he may deem necessary.

Transmission Systems Act

§838b(d): . . . the Administrator . . . shall construct improvements, betterments, and additions to and replacements of such system within the Pacific Northwest as he determines are appropriate and required to . . . maintain the electrical stability and electrical reliability of the Federal system.

§838g: Such rate schedules . . . shall be fixed and established (1) with a view to encouraging the widest possible diversified use of power at the lowest possible rates to consumers consistent with sound business principles . . . .

Transmission System Act, cont.

§838h: The said schedules of rates and charges for transmission, the said schedules of rates and charges for the sale of electric power, or both such schedules, may provide, among other things, for uniform rates or rates uniform throughout prescribed transmission areas. The recovery of the cost of the Federal transmission system shall be equitably allocated between Federal and non-Federal power utilizing such system.

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Northwest Power Act

§839a(3). "Conservation" means any reduction in electric power consumption as a result of increases in the efficiency of energy use, production, or distribution.

§839a(19). "Resource" means . . . (B) actual or planned load reduction resulting from direct application of a renewable energy resource by a consumer, or from a conservation measure.

§839e(a)(2)(C) . . . insofar as transmission rates are concerned, equitably allocate the costs of the Federal transmission system between Federal and non-Federal power utilizing such system.

Northwest Power Act, cont.

§839e(a). The Administrator shall establish, and periodically review and revise, rates . . . . Such rates shall be established and, as appropriate, revised to recover, in accordance with sound business principles, the cost associated with the acquisition, conservation, and transmission of electric power . . . .

§839e(e). Nothing in this chapter prohibits the Administrator from establishing, in rate schedules of general application, a uniform rate or rates for sale of peaking capacity or from establishing time-of-day, seasonal rates, or other rate forms.

§839e(g) . . . the Administrator shall equitably allocate to power rates . . . all costs and benefits not otherwise allocated under this section, including, but not limited to, conservation . . . .

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Northwest Power Act, cont.

§839f(b). The Administrator shall discharge the executive and administrative functions of his office in accordance with the policy established by the Bonneville Project Act of 1937 (16 U.S.C. 832 and following), section 302(a)(2) and (3) of the Department of Energy Organization Act, and this Act. The Secretary of Energy, the Council, and the Administrator shall take such steps as are necessary to assure the timely implementation of this Act in a sound and business-like manner. Nothing in this Act shall be construed by the Secretary, the Administrator, or any other official of the Department of Energy to modify, after, or otherwise affect the requirements and directive expressed by the Congress in section 302(a)(2) and (3) of the Department of Energy Organization Act or the operations of such officials as they existed prior to enactment of this Act.

BPA's Organic Statutes

- The provisions cited above are simply examples of the provisions within those laws which may be relevant to our analysis.

Open Access Transmission Tariff
PTP Service

§13.5 . . . To the extent the Transmission Provider can relieve any system constraint more economically by redispatching the Transmission Provider's resources than through constructing Network Upgrades, it shall do so, provided that the Eligible Customer agrees to compensate the Transmission Provider pursuant to the terms of Section 27.

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Open Access Transmission Tariff
Network Integration Transmission Service

§30.5 Except as provided in Attachment K, as a condition to receiving Network Integration Transmission Service, the Network Customer agrees to redispatch its Network Resources as requested by the Transmission Provider pursuant to section 33.2. To the extent practical, the redispatch of resources pursuant to this section shall be on a least cost, non-discriminatory basis between all Network Customers and the Transmission Provider.

§33.2 . . . Except as provided in Attachment K, to the extent the Transmission Provider determines that the reliability of the Transmission System can be maintained by redispatching resources, the Transmission Provider will initiate procedures pursuant to the Network Operating Agreement to redispatch all Network Resources and the Transmission Provider's own resources on a least-cost basis without regard to the ownership of such resources. Any redispatch under this section may not unduly discriminate between . . . Native Load Customers and any Network Customer's use of the Transmission System to serve its designated Network Load.

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Rates Research on Allocation of Power & Transmission Costs

- The issue of whether conservation costs could be functionalized to transmission and recovered in transmission rates has been litigated in BPA rate cases. See Administrator's Record of Decision, 1993 Final Rate Proposal, WP-93-A-02, 38-40.
- Is a cost causation principle relevant? If so, what proof is necessary?
- Can the Administrator design transmission rates to send signals to encourage non-wires solutions?

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Assuming certain non-wires solutions may be treated as transmission measures . . .

- What analysis determines that a transmission non-wires solution is the most effective solution: Demonstration of transmission need? Least cost planning? Avoided cost? Some other cost-benefit analysis?
- What information is required for Programs in Review?
- What evidence is necessary to defend a non-wires solution in transmission rates, before both FERC and Ninth Circuit?

Industry Guidance

- We are reviewing FERC cases to understand the industry direction on this issue.
- BPA is not a FERC-jurisdictional utility; FERC's decisions inform BPA practices when consistent with BPA's statutory authority and ratemaking standards.
- FERC lately has reviewed non-wires or demand-side management programs in the ISO/RTO context.
- FERC has been very clear that it does not equate BPA with ISOs and RTOs.

Where FERC Is Headed

- RTOs and ISOs have great latitude to balance power and transmission markets, including the use of demand-side management programs, load reduction programs, and typical conservation, to enhance reliability, reduce energy costs, and relieve congestion.
- ISOs and RTOs are to take into account market-motivated, least-cost solutions in transmission planning and the review should not be biased in favor of transmission solutions.
- ISOs and RTOs use locational marginal pricing (LMP) to manage congestion.

FERC, cont.

- FERC's views on the vertically integrated utility's use of non-wire solutions may be different.
- Examples of FERC orders and cases on this topic:
  - Order 2000
  - Illinois Power, 95 FERC ¶ 63,003 (April 6, 2001).
  - ISO New England, Inc. et al., 91 FERC ¶ 61,311 (June 28, 2000).
  - Bangor Hydro Electric Company, et al., 96 FERC ¶ 61,063 (July 12, 2001).
  - ISO New England, Inc. and New England Power Pool, 95 FERC ¶ 61,384(June 13, 2001).
  - National Grid USA, et al., 97 FERC ¶ 61,329 (December, 2001).

FERC, cont.

- The cases cited above are only examples of FERC cases addressing this topic.
- As suggested above, these or other FERC cases on this topic may not be relevant to BPA's legal analysis.

Conclusion

- OGC-LT will continue to research this issue and advise our BPA client of our legal analysis as it becomes available.

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OGC-LT Non-Wires Research Team

- Lee Martin, Paralegal
- Mary Jensen, Attorney
- Susan Millar, Attorney
- Sonya Baskerville, Assistant General Counsel

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"Who Funds, Who Implements" Subcommittee

Bill Pascoe

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"Transparency of Planning" Subcommittee

Brian Silverstein

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Lack of Transparency Action Plan

1. Engage Stakeholders
2. Develop Draft BPA Long-Range Transmission Plan (June, 2004)
3. Develop a Region-Wide Transmission Plan
4. Evaluate Response to Plan and Update Plan (Every Other Year)

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Northwest Power Pool TPC/NTAC 2004 Work Products

1. Screening studies
2. Path utilization/path availability analysis
3. Commercial path analysis
4. High level path system studies
5. Local area plans

Olympic Peninsula Wind/PV Data

Ottie Nabors

Problem Statement

- Can wind or photovoltaic resources help relieve peak loads on the transmission system serving the Olympic Peninsula?
- Implied is coincidence of adequate wind and/or solar radiation (or PV with storage) during a 1 in 20 weather event to help meet dual daily peak demands at 6-9 AM and 5-8 PM.

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Study Sources

- Paper prepared by Chinook Wind
- Survey of weather station Data for
  - Quillayute AP
  - Port Angeles AP
  - Bremerton

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Paper by Chinook Wind

- Peak Load Data for 80 peak hours (5 hours each1988-2003)
  - 60 hours occurred in January through February
  - 75 hours occurred between 07:00 and 10:00 with module occurrence at 08:00 (50%)
- Source Data
  - Cap Flattery
  - Quillayute AP
  - Hoquiam AP

Paper by Chinook Wind (Cont)

- Wind data for Quillayute and Hoquiam compared with timing of peak loads for 2000 – 2003.
  - Wind speeds at these times scaled up to hypothetical wind turbine site in vicinity
  - Hypothetical GE 1.5MW turbine

Paper by Chinook Wind (Cont.)

- Conclusions:
  - Capacity factor range from 0% to 100%
  - Average Capacity factor 34%
  - Output may occur at different levels depending on location of wind turbine. Example:

    On 2/24/2001; Hoquiam=79% output, Quillayute=41% output
  - Wind speeds seem to correlate with increasing temperatures, which may mean that wind power may not have good correlation with high output during peak load hours.

Olympic Peninsula Weather Data for Wind & PV Analysis

Data Screening by BPA Staff

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Data Availability

- Olympic Peninsula weather stations with " almost" full data collection
  - Bremerton
  - Port Angeles AP
  - Quillayute AP
- Solar Radiation (w/m^2) not measured on peninsula
  - Cloud Cover, Cloud Height measures very poor substitutes
- Wind Speed & Direction available but lots of "goose eggs" at temperatures below freezing
- Weather data captured down to 20-minute intervals in some cases
  - Data for 1 July 1996 through 5 Jan 2004 available from University Washington K12 education web site
  - Over 120,000 records per site with lots of missing time periods and missing/"NA"/"M"/"UNL" data (Raw Data)
  - We can get an idea about the quality of information available

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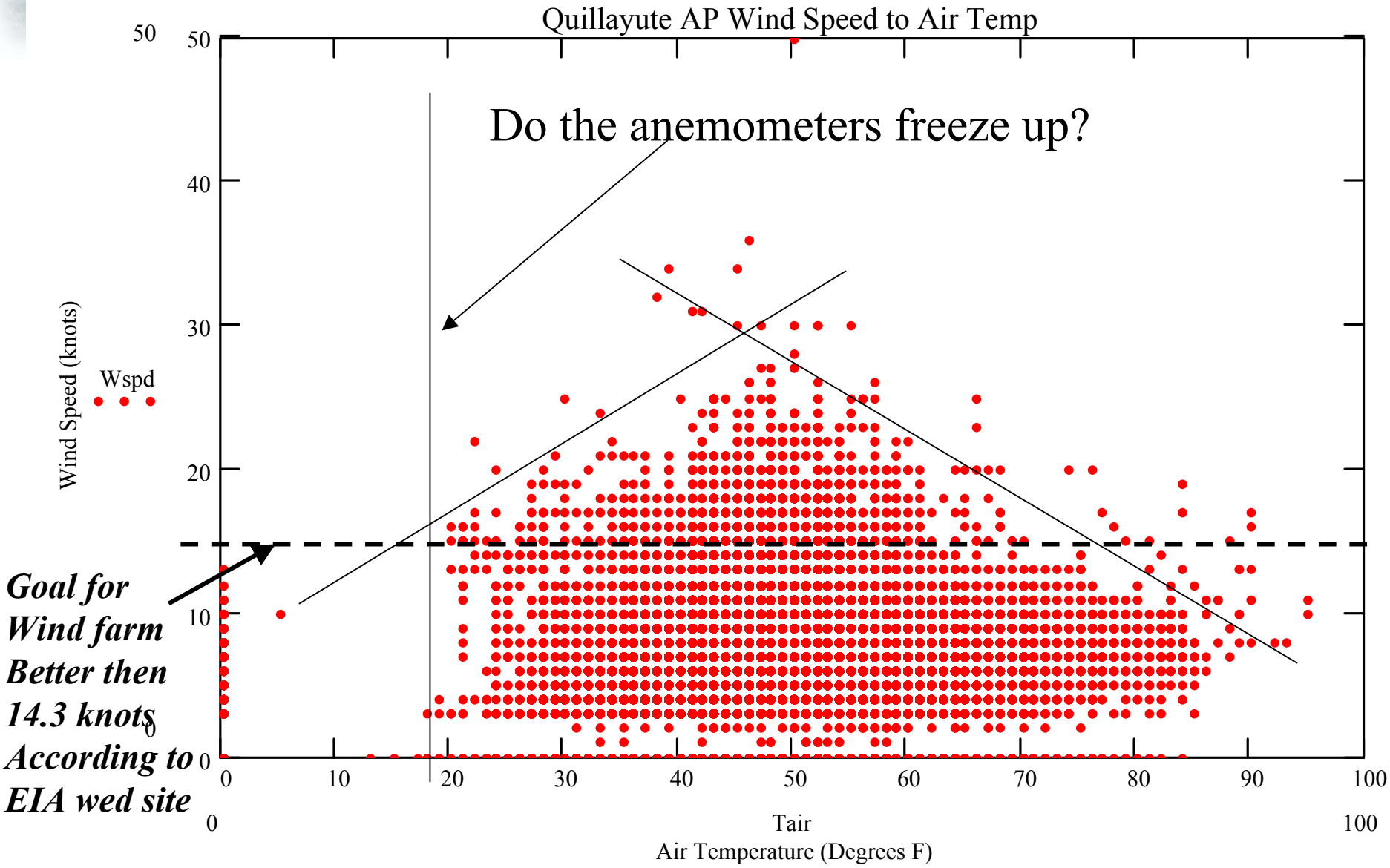
Weather Station Observations
1 July 1996 to 5 January 2004

Weather Station	Bremerton	Port Angeles	Quillayute
Number of Total Records	178,900	75,381	122,100
Number of Clean Records	168,900	64,210	101,500
Observations 30° or less	4,947	1,230	1,902

Clean records are those records with data for air temperature, wind speed, wind direction and cloud cover; no missing information.
It should be noted that many time periods are missing in the dataset, probably due to collection problems.


Quillayute AP Wind Speed to Air Temp
Do the anemometers freeze up?
Wind Speed (knots)
Wspd
Goal for Wind farm Better then 14.3 knots According to EIA wed site
Tair
Air Temperature (Degrees F)
0
10
20
30
40
50
60
70
80
90
100

Issues

- Plots of Air Temperature to Wind Speed suggest possible problems with data collection.
  - Data collection questionable at sub-freezing temperatures
  - Does the pyramid shape scatter plots represent actual wind behavior?
- Special data collection necessary for full meaningful feasibility analysis of wind resources. That is why the Makah are undertaking one now.

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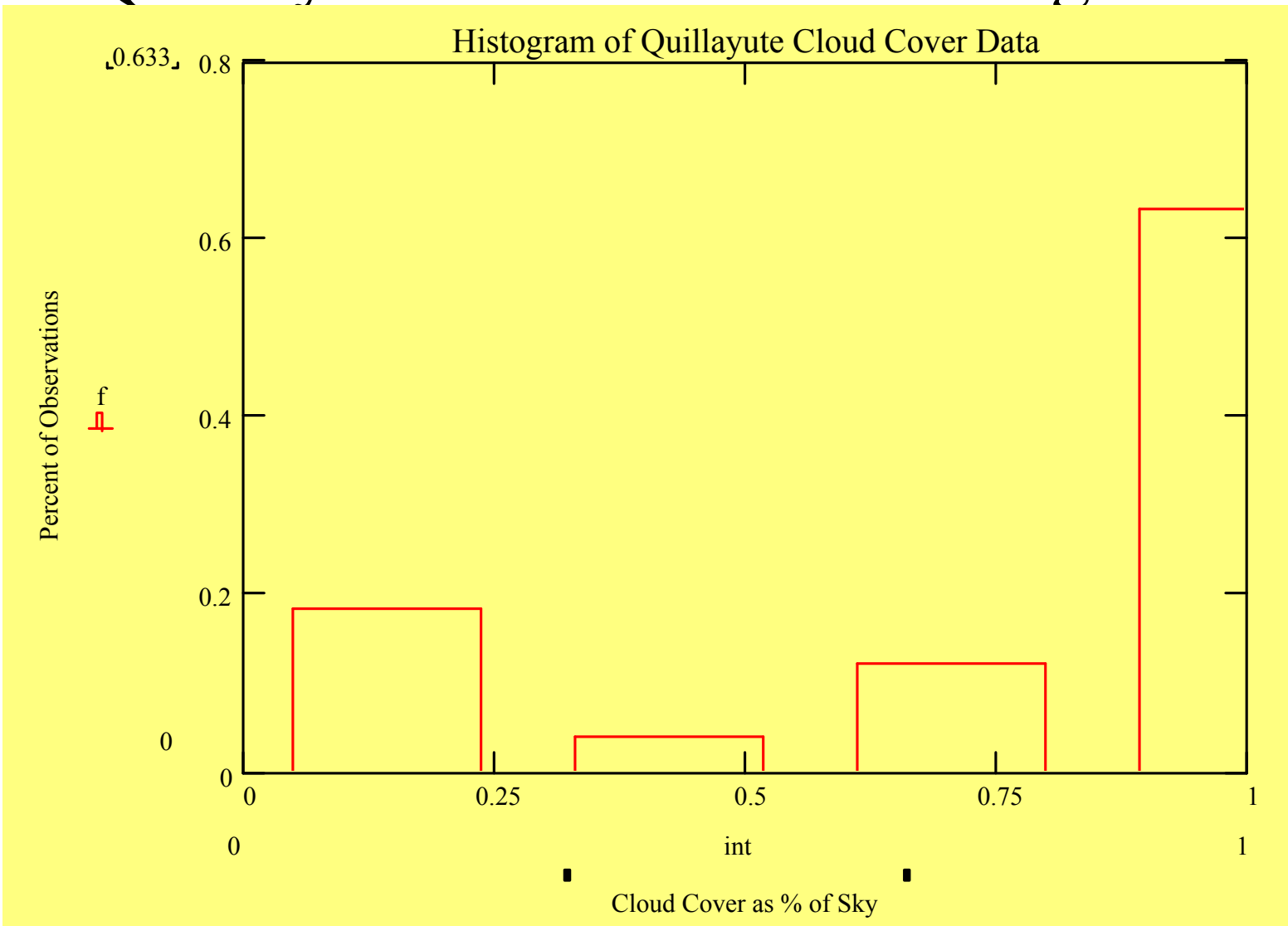
Quillayute Cloud Cover Histogram



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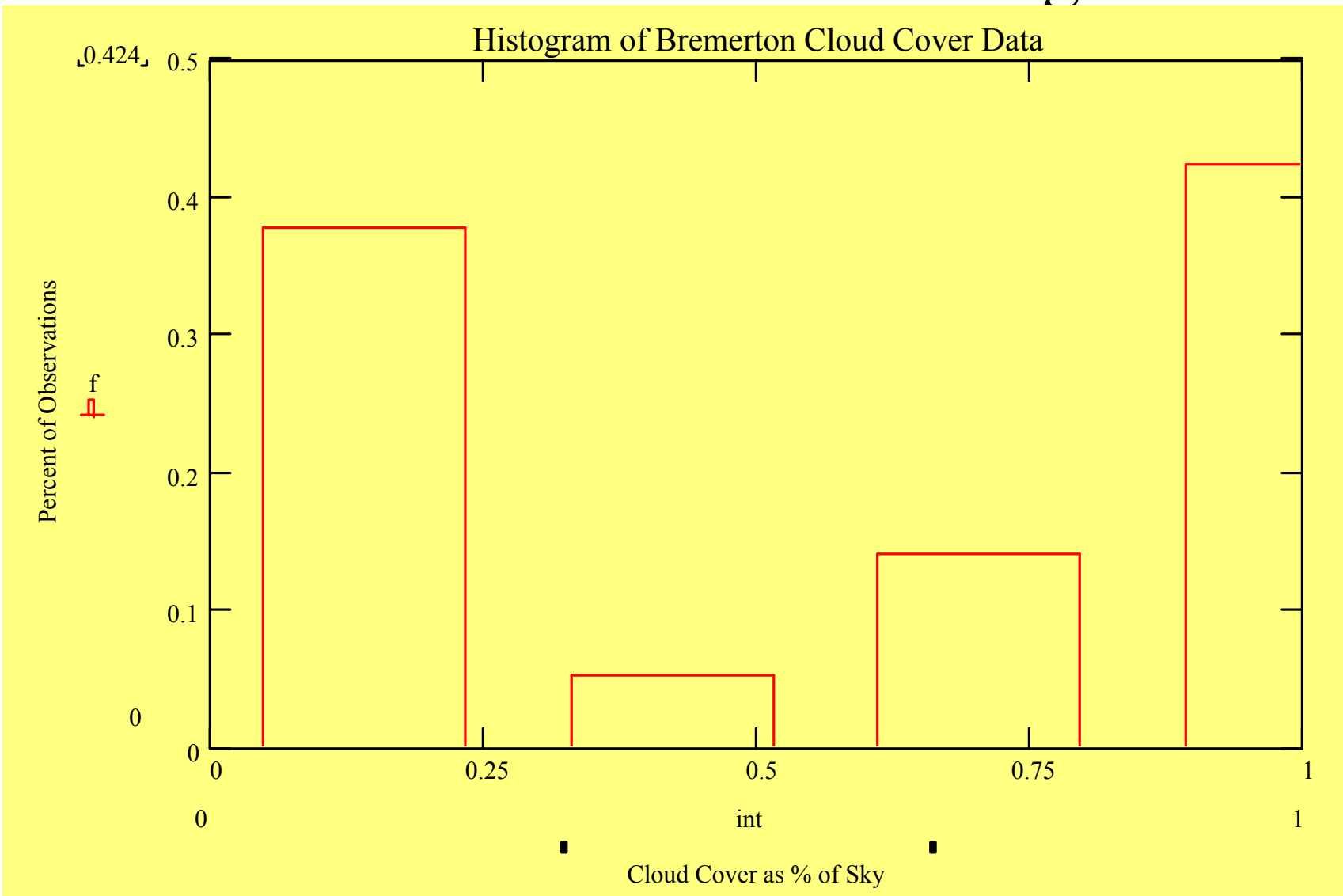
Bremerton Cloud Cover Histogram



Issues

- Seems like an awful large number of observations with no or little cloud cover. Can this be true?
- Answer per e-mail from Michael Van Tress, BPA Weather Branch:
  - Cloud cover information is good for 12,000 feet and lower. You could have overcast skies with a cloud ceiling at 20,000 feet, and our data set would call it clear skies.
- Radiant energy not collected for Olympic Peninsula

Cold Snap of January 2004

- Comparison of Olympic Peninsula Loads on 4 January 2004 with Air Temperature and Wind Speed
- Data availability is better then in earlier time periods

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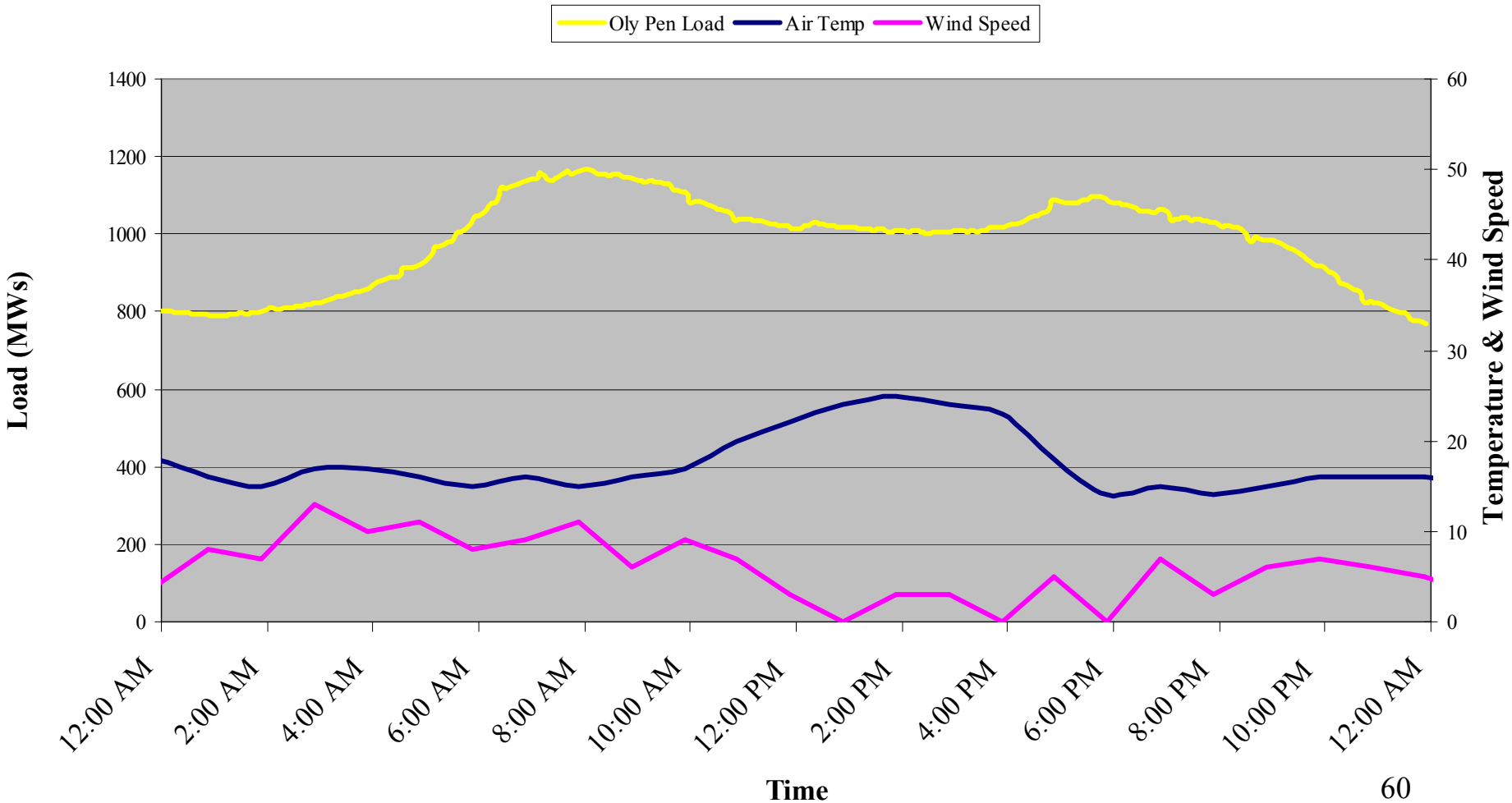
Port Angeles Airport Weather Station



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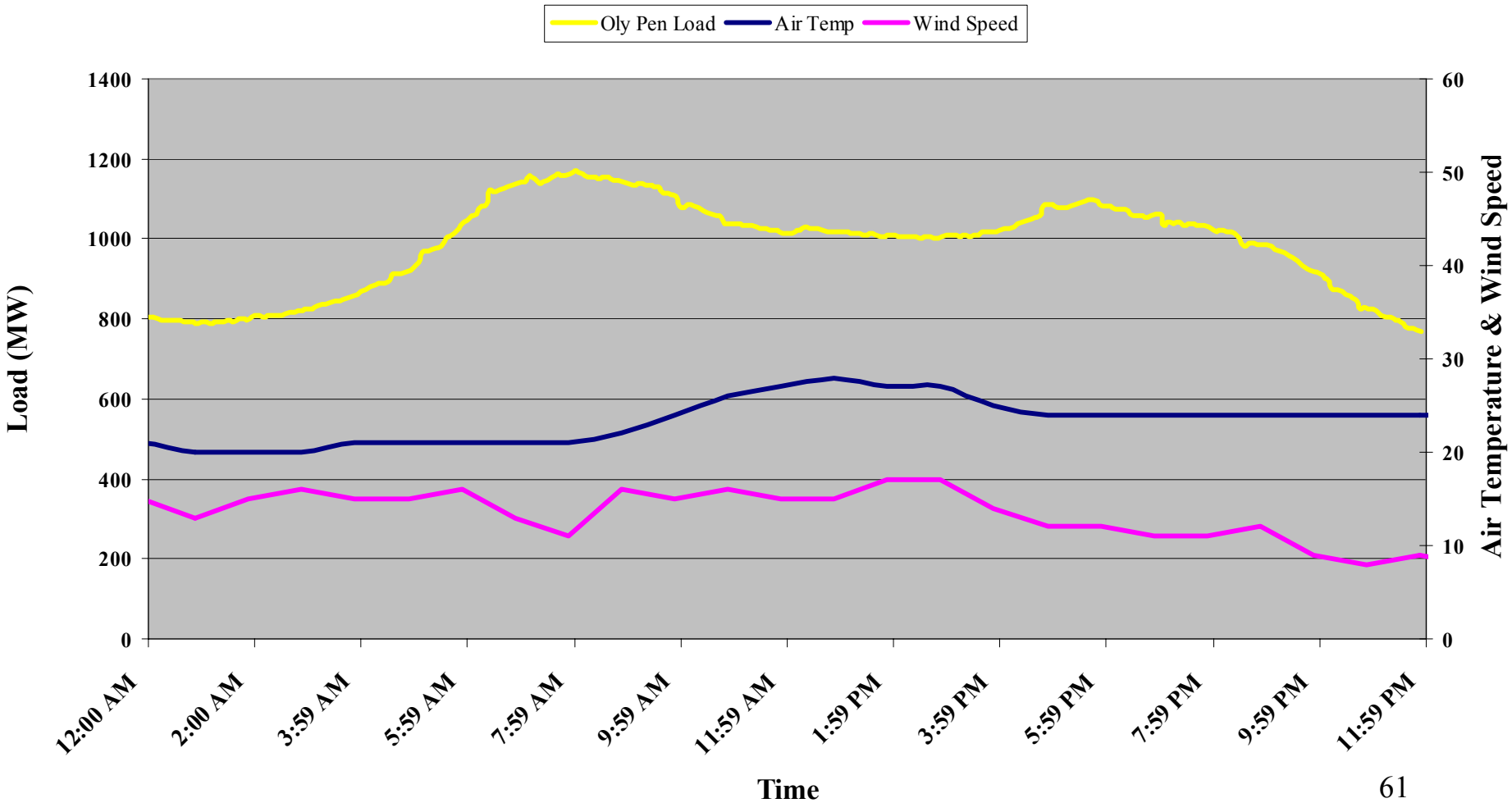
Quillayute Airport Weather Station



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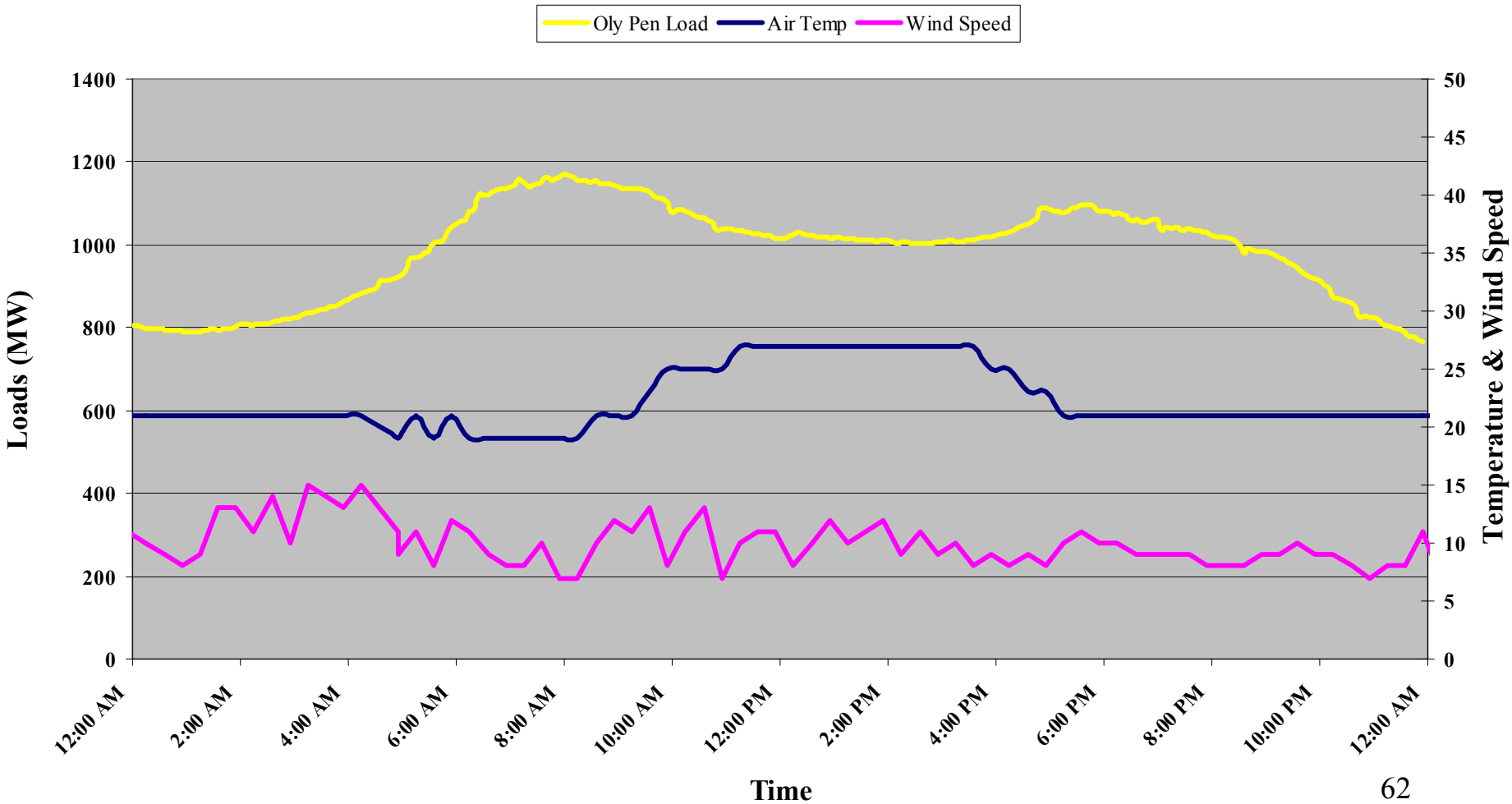
Bremerton Weather Station



Issues Reiterated

- Wind speed measurements at cold temperatures is of doubtful quality.
  - Question about the sensing equipment.
- Cloud Cover data not useful for determining solar radiation
  - Cloud Cover measurements do not consider clouds above 12,000 feet

Conclusions

- Existing weather station data is not sufficient to determine the effectiveness of PV on Olympic Peninsula to impact peak transmission loads.
- Data does hint at the possible effectiveness of wind during peak periods, but is inconclusive to give wind more then 34% capacity factor.
- There exists significant questions about the quality of weather station data at peak periods.

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Programmatic Environmental Impact Study

Carolyn Whitney and Charles Alton

Adjourn